Universal Design for Learning (UDL), Differentiating Instruction (DI) and Responding to Intervention (RTI)

http://cstl-coe.semo.edu/naguinaga/

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December 16, 2009
Session Overview

The possibilities and responsibilities of Education
What is Universal Design for Learning?
UDL and the relationship to brain research
UDL Guidelines
What Is Differentiation?
Planning for Academic Diversity
How DI coordinates with UDL theory
Where does RTI fit in?
Resources
Objectives

- Gain an overview of Universal Design for Learning and the relationship with Differentiated Instruction and Response to Intervention
- Be able to implement several strategies
- Identify things to consider when implementing UDL, DI and RTI
Education Yesterday, Today and Tomorrow

http://www.youtube.com/watch?v=Fnh9q_cQcUE&feature=related
If the goal is to educate every student to the highest potential, schools need to move away from this monolithic classroom model and toward a student–centric model with a modular design that enables mass customization.

Clayton M. Christensen, Michael B. Horn, and Curtis W. Johnson are the authors of Disrupting Class: How Disruptive Innovation Will Change the Way the World Learns (McGraw–Hill, June 2008).
Universal Design Origin

Movement in architecture

Consider the needs of the broadest possible range of users from the beginning”    Architect, Ron Mace

Activity: Pair up and brainstorm for 1 minute examples of Universal Design.
  ◦ Share

Primary barrier to making expert learners of all students

- Inflexible, one-size-fits-all curricula
  - raise unintentional barriers to learning

  Learners with disabilities are the most vulnerable to such barriers, but many students without disabilities also find that curricula are poorly designed to meet their learning needs.
Diversity is the norm, not the exception

When curricula are designed to meet the needs of the broad middle to the exclusion of those with different abilities, learning styles, backgrounds, and even preferences, they fail to provide all individuals with fair and equal opportunities to learn.
The goal of education

- Not simply the mastery of knowledge
- It is the mastery of *learning*
- Education should help turn novice learners into expert learners
- Develop individuals who know how to learn, who want to learn, and who, in their own highly individual ways, are well prepared for a lifetime of learning.
Universal Design for Learning

- A curriculum framework
- Flexible and supportive for all
- Decreases the barriers that limit access
- Based on brain research
Origins of Universal Design for Learning (UDL)

CAST believes that
“barriers to learning are not, in fact, inherent in the capacities of learners, but instead arise in learners' interactions with inflexible educational goals, materials, methods, and assessments.”

Teaching Every Student in the Digital Age, p. vi
“Disability is defined in the interaction between the vulnerabilities of an individual and the limitations of their environment”

Jon Mundorf
UDL and the Learning Brain

UDL and the Learning Brain

- Recognition network
- Strategic network
- Affective network
Recognition networks: “the what of learning”

identify and interpret patterns of sound, light, taste, smell, and touch
Aoccdrnig to a rscheearch at Cmabrigde Unervtisy, it deosn't mttaerin what oredr the ltteers in a word are, the olny iprmoetnt tihng is that the frist and lsat ltteer be at the rghit pclae. The rset can be a toatl mses and you can still raed it wouthit porbelm. This is bcuseae the huamn mnid deos not raed ervey lteter by istlef, but the word as a wlohe.

http://www.mrc-cbu.cam.ac.uk/people/matt.davis/home.html
UDL and the Learning Brain

http://www.cast.org/teachingeverystudent/tools/studio.cfm?t_id=10&step=1
UDL and the Learning Brain

Strategic networks: “the how of learning”
plan, execute, and monitor actions and skills
UDL and the Learning Brain

UDL and the Learning Brain

Affective networks:
“the why of learning”
evaluate and set priorities

Affective networks – located at core of brain
UDL and the Learning Brain

UDL and the Learning Brain

One must recognize information, ideas, and concepts

One must be able to apply strategies to process the information

One must be engaged

Vygotsky
UDL and the Learning Brain

Task is too difficult for learner

ZONE OF PROXIMAL DEVELOPMENT

Task is too easy for learner
UDL and the Learning Brain
<table>
<thead>
<tr>
<th>NETWORK-APPROPRIATE TEACHING METHODS</th>
</tr>
</thead>
</table>

To support diverse **recognition networks**:
- Provide multiple examples
- Highlight critical features
- Provide multiple media and formats
- Support background context

To support diverse **strategic networks**:
- Provide flexible models of skilled performance
- Provide opportunities to practice with **supports**
- Provide ongoing, relevant feedback
- Offer flexible opportunities for demonstrating skill

To support diverse **affective networks**:
- Offer choices of content and tools
- Offer adjustable levels of challenge
- Offer choices of rewards
- Offer choices of learning context
PRINCIPLES OF THE UNIVERSAL DESIGN FOR LEARNING FRAMEWORK

Principle 1:
To support recognition learning, provide multiple, flexible methods of presentation/representation.

Principle 2:
To support strategic learning, provide multiple, flexible methods of expression and apprenticeship.

Principle 3:
To support affective learning, provide multiple, flexible options for engagement.
UDL and the Learning Brain

All learners are unique and universal does not mean “one size fits all”
Technology and print and the move to digital literacy can be summarized in the following video "Introducing the Book,"

http://www.youtube.com/watch?v=xFAWR6hzZek&feature=player_embedded
UDL and Digital Media
UDL and Digital Media

Embedded Learning Supports

Prompt

Model

Additional Background Knowledge
A universally designed curriculum is shaped from the outset to meet the needs of the greatest number of users, making costly, time-consuming, and after-the-fact changes to the curriculum unnecessary.
Planning for Academic Diversity

Diversity Blueprint

- Receptive Language
  - Background Knowledge
- Expressive Language
  - Written Expression
- Memory
  - Persistence
- Reading
  - Decoding
  - Comprehension
- Ambulate
  - Gross Motor Skills
  - Fine Motor Skills
- Hard of Hearing
  - Deaf
- Low Vision
  - Blind

Dave Edyburn, 2008
Planning for Academic Diversity

- Google
  [http://www.google.com](http://www.google.com)
- 42Explore: Thematic Pathfinders
  [http://42explore.com/](http://42explore.com/)
- 4 Teachers
  [http://4teachers.org/](http://4teachers.org/)
- Blue Web’n
- Eduscapes

Edyburn, 2008
Planning for Academic Diversity

- Internet4Classrooms
  http://www.internet4classrooms.com/
- Kathy Schrock’s Guide for Educators
  http://school.discovery.com/schrockguide/
- Marco Polo/Thinkfinity
  http://www.marcopolo-education.org/
- netTrekker d.i.
  http://www.nettrekker.com
- TrackStar
  http://trackstar.4teachers.org/
Common Academic Tasks and Instructional Challenges

- Read a chapter in a science textbook
  - Deficits in background knowledge
  - Below grade level reading skills
  - Poor fluency and comprehension skills
  - Difficulty with new vocabulary

Edyburn, 2008
Planning for Academic Diversity

- Read a chapter in a science textbook
  - Scan textbook
  - Locate/create materials with audio support
    - StarChild
  - Search for alternative text source materials
    - How Things Work, Wikipedia, E-textbooks
  - Search for alternative media materials
    - BrainPop
Planning for Academic Diversity

- Solve multi–step math problems

- Traditional chalkboard/paper/pencil AND/OR
  - Calculation Support
    - WebMath
  - Conceptual Support
    - Virtual Math Manipulatives
  - Visual Support
    - iKnowThat Leon Math Movies
Designing Challenge & Engagement

The flexibility of digital curriculum makes it easier than ever to adjust the challenge level of academic tasks. The concept of a volume control slider is a useful metaphor for describing the supports available in a universally designed learning environment. Tomlinson (1999) uses the term “equalizer” to discuss the concept of a slider.

Eduburn, 2008
Accommodations – always before Modifications

- An accommodation is an alteration in how an assignment or test is presented to, or responded to, by the student
  - The alteration DOES NOT substantially change the level or content of the material.
One practical application of a slider is a cognitive rescaling intervention utilizing the AutoSummary feature in Microsoft Word (Edyburn, 2002).

AutoSummarize

This feature automatically creates a summary of any on-screen document. Because the summary is created by a computer, and not a person, it is important for teachers to review summaries and original texts prior to relying upon any summary.

To create an AutoSummary:
Open the file to be summarized
Tools>>>AutoSummarize. A window will open
Select the options you want from this window, and click OK.
Microsoft Word Accessibility

- To configure the Spelling Checker:
  Tools>>>Options>>>Spelling & Grammar

- To configure the Grammar Checker:
  Tools>>>Options>>>Spelling & Grammar>>>Options

- To show readability statistics:
  Tools>>>Options>>>Spelling & Grammar
  It is useful as an approximation of the level of reading skills needed to read any particular text, and it is certainly imperfect.
Inserting Text Comments and Voice Comments

- To insert a **text comment**, click on the Insert menu and select Comment. A text box will appear in the right hand margin. Insert your cursor in the box and type your comment.

- To insert a **voice comment**, click on the Insert menu and select Object. A dialogue box with a list will appear. Scroll down to Wave Sound and select that item. A recording box will appear on the screen. Click on the little red box to record your message.
In Word, immediately after you type a URL (e.g. http://www.cast.org) and press enter, a hyperlink will automatically be created for you.

Sometimes it is better to make a hyperlink using a word or phrase that will identify where the link is taking you to. Alternatively, you can link to web pages, sound files (you can record your own), video files, other Word documents, spreadsheets --- in fact, any other type of file. In addition, you can link to a bookmark, which allows you to create custom glossaries of word definitions.
Text-to-Speech (TTS) in Word Documents

In Word, go to the Tools and select Speech. One of three things will happen:

- The speech menu bar will appear at the top of your screen.
- The dialogue box will appear for speech recognition, cancel this. The menu bar should now appear at the top of your screen.
- You may need to install the speech tools. If this is true, the installation dialogue box will appear. Just follow directions.
More Effective flexible technologies

- Wikis
- Podcasting
- Google Docs
- Mimio (Smartboard)
- Inspiration
- Time for Kids
- Brain Pop and United Streaming
- Microsoft Word and Microsoft PowerPoint
- Blog (http://jmundorf.edublogs.org)
- Talking Text (WYNN)
Using Technology to Support Diverse Learners

http://www.wested.org/tdl/
CAST is a nonprofit education R&D group best known for defining and promoting the innovative concepts of Universal Design for Learning (UDL).

Free online tools to make education more engaging and accessible for all.

1) **UDL BookBuilder** ([http://bookbuilder.cast.org](http://bookbuilder.cast.org)) is a free resource to help teachers and parents develop their own digital books to support reading instruction for children ages 3 and up. Enables users to create, edit, and save their own online books.

2) **UDL Editions by CAST** ([http://udleditions.cast.org/](http://udleditions.cast.org/)) offers classics from world literature like you’ve never seen them before -- in a flexible online interface that supports and engages novice and expert readers alike.

3) **CAST Strategy Tutor** ([http://cst.cast.org/](http://cst.cast.org/)) offers adolescent readers and their teachers customizable mentoring and support as they conduct Internet research and read websites.

4) **UDL Lesson Builder** ([http://lessonbuilder.cast.org](http://lessonbuilder.cast.org)) is a free online tool that helps educators build options and supports into their lessons to reach and engage all students.

5) **UDL Curriculum Self–Check** ([http://udlselfcheck.cast.org/](http://udlselfcheck.cast.org/)) provides an interactive tool to help educators identify areas of the curriculum where barriers may exist or more supports for diverse learners are needed.
Using a curriculum that is rooted in the 3 UDL principles, students have:

1. Options for how they learn
2. Choices which will engage their interest
3. Choices for how they demonstrate their learning

Teachers provide:

1. Flexible ways of presenting lesson content
2. Flexible options for student engagement
3. Flexible methods of expression and assessment

Separate the goals from the means
What Is Differentiation?

- A teacher’s response to learner needs
- The recognition of students’ varying background knowledge and preferences
- Instruction that appeals to students’ differences
- Gives students multiple options for taking in information and making sense of ideas
Differentiated Instruction

- In a differentiated classroom, teachers begin where their students are, not where they feel she should be or as the curriculum dictates.

- Instruction methodologies vary and are adapted to meet the needs of individual and diverse learners.
Teachers Can Differentiate

According to Students’’

Adapted from *The Differentiated Classroom: Responding to the Needs of All Learners* (Tomlinson, 1999).
Guidelines that make Differentiation possible for teachers to attain

- *Clarify key concepts and generalizations*
- *Use assessment as a teaching tool to extend rather than merely measure instruction*
- *Emphasize critical and creative thinking as a goal in lesson design*
- *Engaging all learners is essential*
- *Provide a balance between teacher-assigned and student-selected tasks*
Examples of Differentiation Strategies

- Choice Boards
- Tiered Activities
- Learning Contracts
Diner Menu – Photosynthesis

Appetizer (Everyone Shares)
• Write the chemical equation for photosynthesis.

Entrée (Select One)
• Draw a picture that shows what happens during photosynthesis.
• Write two paragraphs about what happens during photosynthesis.
• Create a rap that explains what happens during photosynthesis.

Side Dishes (Select at Least Two)
• Define respiration, in writing.
• Compare photosynthesis to respiration using a Venn Diagram.
• Write a journal entry from the point of view of a green plant.
• With a partner, create and perform a skit that shows the differences between photosynthesis and respiration.

Dessert (Optional)
• Create a test to assess the teacher’s knowledge of photosynthesis.
# THINK–TAC–TOE

## Book Report

<table>
<thead>
<tr>
<th>Draw a picture of the main character.</th>
<th>Perform a play that shows the conclusion of a story.</th>
<th>Write a song about one of the main events.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Write a poem about two main events in the story.</td>
<td>Make a poster that shows the order of events in the story.</td>
<td>Dress up as your favorite character and perform a speech telling who you are.</td>
</tr>
<tr>
<td>Create a Venn diagram comparing and contrasting the introduction to the closing.</td>
<td>Write two paragraphs about the main character.</td>
<td>Write two paragraphs about the setting.</td>
</tr>
</tbody>
</table>

[http://www.uwm.edu/~edyburn/tictactoe.html](http://www.uwm.edu/~edyburn/tictactoe.html)
# Tiered Activity – Writing a Persuasive Essay

## 4th–6th Grade Classroom

<table>
<thead>
<tr>
<th>Outcome/Objective</th>
<th>Beginning</th>
<th>Intermediate</th>
<th>Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students will determine a topic and will write a five-sentence paragraph with a main idea, three supporting sentences, and a concluding sentence.</td>
<td>Students will determine a topic, state a point of view, and write two paragraphs defending that point of view.</td>
<td>Students will determine a topic, state a point of view, and write an essay of at least five paragraphs that uses multiple sources to defend that point of view.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Instruction/Activity</th>
<th>Beginning</th>
<th>Intermediate</th>
<th>Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students will receive a model of a five-sentence paragraph and explicit instruction in constructing the paragraph. As a prewriting activity, students will list their topic and develop a list of at least three things that support their topic.</td>
<td>Students will receive a model of a persuasive essay and a graphic organizer that explains the construction of a persuasive essay. Students will also receive explicit instruction in writing a persuasive essay. As a prewriting activity, students will use the graphic organizer to plan their writing.</td>
<td>Students will review the graphic organizer for a persuasive essay. Students will be given explicit instruction in locating sources and quotes for their essays. As a prewriting activity, students will use the graphic organizer to organize their essay. Students will also compile a list of five sources that defend their main point.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Beginning</th>
<th>Intermediate</th>
<th>Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students will be able to write a five-sentence paragraph that successfully states and supports a main idea. The paragraph will meet the criteria on the state writing rubric.</td>
<td>Students will be able to state a point of view and successfully defend the idea using two paragraphs that defend the point of view using main ideas and supporting details. The paragraphs will meet the criteria on the state writing rubric.</td>
<td>Students will be able to write a five-paragraph essay that states a point of view, defends the point of view, and uses resources to support the point of view. The essay will meet the criteria on the state writing rubric.</td>
<td></td>
</tr>
</tbody>
</table>
Learning Contract #1

Name _______________________

My question or topic is:

To find out about my question or topic…

I will read:  

I will look at and listen to:

I will write:

I will draw:

I will need:

Here’s how I will share what I know:

I will finish by this date:

To find out about my question or topic…

I will read:  

I will look at and listen to:

I will write:

I will draw:

I will need:

Here’s how I will share what I know:

I will finish by this date:
Learning Contract #2

To demonstrate what I have learned about ____________________, I want to

  _ Write a report
  _ Put on a demonstration
  _ Set up an experiment
  _ Develop a computer presentation
  _ Build a model

This will be a good way to demonstrate understanding of this concept because _______________________________________________________________

To do this project, I will need help with

______________________________________________________________

My Action Plan is________________________________________________

The criteria/rubric which will be used to assess my final product is ________

______________________________________________________________

My project will be completed by this date _____________________________

Student signature: ________________________________  Date ___/___/___

Teacher signature: ________________________________ Date ___/___/___
Assessment in the Differentiated Classroom

- Ongoing
- Instruction-dependent
- Student-dependent
- Informative for continued instruction
How Differentiated Instruction coordinates with UDL theory

Each of the three key elements of DI

• Content
• Process
• Product

supports an important UDL teaching method for individualized instruction of pattern recognition.
The content guidelines for differentiated instruction supports the first UDL Teaching Method for recognition networks, *provide multiple examples*, in that they encourage the use of several elements and materials to support instructional content. 

- *provide multiple media and formats*
- *highlight critical features*
- *support background knowledge*
Strategic learning

- People find for themselves the most desirable method of learning strategies.
- Teaching methodologies need to be varied.
- Differentiated instruction can support these teaching methods in valuable ways.
  - flexible models of skilled performance
  - supported practice
  - flexible opportunities for demonstrating skill
Engagement is a vital component of effective classroom management, organization, and instruction.

- Offer choices of tools
- Adjust the level of difficulty of the material
- Offer a choice of learning context

http://www.biertijd.com/mediaplayer/?itemid=16297
### UDL Elements in a Differentiated Instruction Mathematics Lesson

<table>
<thead>
<tr>
<th>UDL Teaching Method</th>
<th>Differentiated Instruction Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide multiple examples.</td>
<td>The teacher provides multiple examples through the story of <em>The King’s Chessboard</em> and other math problems.</td>
</tr>
<tr>
<td>Highlight critical features.</td>
<td>The teacher highlights critical features of the mathematics in the story by stopping and calculating the amount of rice accumulating and using a t-table to do so.</td>
</tr>
<tr>
<td>Provide multiple media and formats.</td>
<td>The teacher reads the story aloud and students have the story to read. The numbers are represented in the story and on the t-table.</td>
</tr>
<tr>
<td>Support background context.</td>
<td>Teachers analyze or pretest students for key preskills and background knowledge.</td>
</tr>
<tr>
<td>Provide ongoing, relevant feedback.</td>
<td>In cooperative groups, students may receive feedback from the teacher and from peers.</td>
</tr>
<tr>
<td>Offer choices of content and tools.</td>
<td>Students are assigned to one of three groups tiered by difficulty; all students are working on the same task but with varying supports.</td>
</tr>
<tr>
<td>Offer adjustable levels of challenge.</td>
<td>Varied supports in the working groups alter the level of independence and difficulty in solving the task.</td>
</tr>
</tbody>
</table>
### UDL Strategies to Further Minimize Lesson Barriers in a Differentiated Instruction Lesson Plan for Mathematics

<table>
<thead>
<tr>
<th>Barrier</th>
<th>UDL Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deducting/constructing numeric functions.</td>
<td>Provide different demonstrations or models of how to use the tools employed in the lesson. Scaffold how to use the t-table and visualize the chessboard.</td>
</tr>
<tr>
<td>Students write an exit card to explain the mathematical story.</td>
<td>Provide alternative formats for students to express their interpretation of the story and the mathematical implications. For example, speaking, creating a diagram, numerical representations.</td>
</tr>
<tr>
<td>The Locker Problem.</td>
<td>Consider background knowledge for students entering this mathematical problem. What range of supports could be made available to provide the informational knowledge so that students can focus on the problem solving component?</td>
</tr>
</tbody>
</table>
Implementing UDL and Differentiated Instruction

- Look for existing resources/infrastructure.
- Start with one or two strategies.
- Try it and be willing to alter and extend.

http://www.udlcenter.org/aboutudl/udlguidelines/examples
A multi-tier approach to the early identification and support of students with learning and behavior needs.

Begins with high-quality instruction and universal screening of all children in the general education classroom.

Struggling learners are provided with interventions at increasing levels of intensity to accelerate their rate of learning.

UDL HAS SUPPORTS BUILT IN
For RTI implementation to work well, the following essential components must be implemented with fidelity and in a rigorous manner:

- High quality, scientifically based classroom instruction
- Ongoing student assessment
- Tiered instruction
- Parent Involvement
Tier 2: Targeted Interventions

- Students not making adequate progress in the regular classroom in Tier 1 are provided with increasingly intensive instruction matched to their needs.
- Intensity varies across group size, frequency and duration of intervention, and level of training of the professionals providing instruction or intervention.

Again, UDL plans for built in accommodations and modifications
RTI and UDL share the objective of improving educational outcomes

Both RTI and UDL

- recognize that poor achievement does not necessarily reflect disability, but rather may also reflect poor instruction.
- Incorporate research-based practices
- reflect the understanding that a curriculum that is effective for one student may not be effective for another student.
- RTI and UDL treat assessment as something that should inform instruction and intervention and consider once-a-year test scores insufficient to determine student ability.
With effective implementation of curriculum-based measurement, interventions can be determined while instruction is still ongoing and before a student fails.

Although IDEA 2004 is largely focused on the use of RTI to identify students with LD, perhaps the greatest potential for synergism with UDL is around instruction.

The UDL framework may be able to support more effective decision-making within RTI, which remains a significant challenge in RTI.

- CAST has developed an online tool, the *UDL Class Profile Maker*, for helping teachers to use the UDL framework to better understand students.
PLAN a change or action
DO the change or action (on a small scale at first)
STUDY the results to learn what did and did not work
ACT by refining the idea or by implementing it on a broader scale
## Pulling it all together

<table>
<thead>
<tr>
<th></th>
<th>UDL</th>
<th>DI</th>
<th>RTI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>What</strong></td>
<td>Recognition network—Multiple means of representation</td>
<td>Content</td>
<td>Curriculum</td>
</tr>
<tr>
<td><strong>How</strong></td>
<td>Strategic network—Multiple means of expression</td>
<td>Process</td>
<td>Instruction</td>
</tr>
<tr>
<td><strong>Why</strong></td>
<td>Affective network—Multiple means of engagement</td>
<td>Product</td>
<td>Learning</td>
</tr>
</tbody>
</table>
"UDL is really a merging of general education and special education, a sharing of responsibility, resources and ownership. It gets away from the "their kids/our kids" divide between general ed. and special ed." –

David Rose
A Practical Reader in Universal Design for Learning
Learning to Change—Changing to Learn

http://www.youtube.com/watch?v=tahTKdEUAPk
Where Do I Go From Here? Resources

CAST – Center for Applied Special Technology
www.cast.org

Assessment:
◦ Curriculum–based measurement
  www.studentprogress.org

National Center on Accessing the General Curriculum (NCAC):
  www.cast.org/ncac/

Access Center:
www.k8accesscenter.org
FREE Technology Applications

http://udltechtoolkit.wikispaces.com/
Text-to-Speech

- **WordTalk** – a free text-to-speech program for the PC that works within WORD and Outlook and highlights each word that is read. Includes a talking spell checker and a talking thesaurus. WordTalk was upgraded in January 2009 and now includes the ability to save settings (Wow!) and you can convert your text file to a wav or MP3 file. Makes this free download even more valuable!

- **Natural Reader** – another free text-to-speech software program which converts any written text to speech (Word, pdf, websites, emails)

- **PowerTalk** – free text-to-speech for PowerPoint presentations

- **Talklets** – make any website talk, embed in your website, blog or wiki

- **Spoken Text** – online text-to-speech MP3 converter

- **YakIToMe!** – Listen to important documents, PowerPoint presentations, emails, RSS feeds, blogs and novels. YAKiToMe! is multi-lingual (English, Spanish, French ...) and brings you the world's best text-to-speech (TTS) synthesis technologies. Easily converts to podcasts.

- **Microsoft Word**

http://udltechtoolkit.wikispaces.com/
Speech-to-Text

**DSpeech**– free text-to-speech AND speech-to-text! PC only

- Microsoft Word

Graphic Organizers

- **Webspiration**– free, beta graphic organizer tool by Inspiration.(It's now available again! Don't miss out this time).
- **Mindomo** – online mind-mapping tool, easily share with others.

- Terms of Use point out that the publisher is based in Romania and that the jurisdiction for any disputes will be Timisoara, Romania.

- **Graphic Organizer Templates** – 40 downloadable templates to use in a word processing program
- **Free Mind** – mind-mapping tool
- **MindMeister** – online collaborative graphic organizing tool
- **Exploratree** – thinking guides and more (definitely worth exploring)
- **Dabbleboard** – freehand graphic organizer and visual whiteboard, fun and easy to use
- **Thinkature** Draw diagrams to illustrate complex ideas
- **Gliffy** Create and share diagrams on the Web
- **Read/Write/Think Webbing Tool**
- **Read/Write/Think Story Map Tool**
- **Best4C**–(for upper grades) >

http://udltechtoolkit.wikispaces.com/
Literacy Tools

- **StarFall** – Pre–K – 2nd grade online activities that promote literacy
- **Literactive** – interactive primary reading activities
- **GenieBooks** – Decodable books in Powerpoint
- **Story Line Online** – Listen to stories read by Screen Actors Guild members – follow along with the text
- **Browser Books** – "This website was created to allow **beginning readers** to read books on their web browser. Readers can click on the triangle in the lower right-hand corner of each page to turn the pages. If they are unsure of a word, they can click on it to hear a child's voice read the word to them. The books have been sorted by level and by subject according to the curriculum." (from the website)
- **Into the Book** – Excellent reading comprehension resource – Using Prior Knowledge, Making Connections, Questioning, Visualizing, Inferring, Summarizing, Evaluating and Synthesizing. K–4
- **Planet eBooks** – Free classic literature to download (middle school and up)
- **Cast UDL Book Builder** – Check out a previous post to learn about this free online tool for creating digital books with embedded prompts.
- **UDL Editions** – Leveled support for seven texts geared for ages 10 and up
- **Poetry Foundation** – free resource to find poetry by category, by name, by title, by author, or by first line. It's digital, attach a voice and it's now accessible!
- **Tar Heel Reader** Here you'll find a collection of **easy-to-read books** on a wide variety of topics. Each book is switch accessible and speech enabled. You may download the books as a slide show in PowerPoint, Impress, or Flash format.
- **Simultaneous Stanza Reader** – SSReader is a free large font reader for Macintosh OS X that speaks text files aloud and displays the text stanza–after–stanza, simultaneously. The program works well with free books from

Writing Support Tools

- **Ginger Spelling** – "Ginger provides an automatic spell checker, through an intelligent automatic context-based correction of spelling mistakes and misused words." Excellent correction, currently in beta, available for download. Add this to your classroom computers and tell your students about it so they can download it to their home computers.(PC only)

- **Ghotit** – Online context spell checker service, great for students with LDs! Tell them to add it to their home computers.
  - Check out the downloadable Ghotit version that provides text-to-speech within the correction window.

- **MyWebspiration** – Beta version of Inspiration – graphic organizers.

Writing Tools

- **Writing Fun** – watch this screencast to see how to use this interactive, online, structured writing tool to help elementary age students write descriptions, narratives, poetry, explanations, procedures, etc.

- **Wacky Web Tales** – an online "madlib" tool

- **Writing Fix** – Interactive Writing Prompts

- **Read/write/think** – Interactive digital activities (click the interactive links – there are many to choose from)

- **OurStory**

- **Mnemograph** – collaborative, online Time Line tools

- **ToonDoo** – Online comic strip creator

- **Make Believe Comix** – Online comic strip creator

- **Scholastic: Story Starters for Grades 1–4** – Story Starters is a bank of writing prompts. Student spins the lever to get a writing prompt. To allow for even greater creativity, the student can spin wheels to change any part of the prompt.
Math Tools

Tools that compensate for mechanical issues:
- **Number Navigator** – A program that assists those with fine motor problems to set out columnar arithmetic, without the need for a spreadsheet
- **GraphCalc** – Online Graphing Calculator
- **Create A Graph**
- **e-Tutor Graphic Calculator** Graph equations
- **FooPlot** – Online plotting tool
- **PDF Pad** – Create and print graph paper
- **EfoFex** – Higher Level Math – free for students with special needs

Tools that promote Math understanding:
- **WebMath** – K– Higher=Ed math
- **Time for Time** – Online analog clock, can manipulate clock and show digital time equivalent. Great for Interactive WhiteBoards or touchscreen monitors
- **Math Playground** – excellent site for Math activities for K – 8, make sure to explore the Mathcasts. Mathcasts allow students to review math when THEY need to.
- **Thinking Blocks** – a creative, interactive math resource to help students understand how to solve word problems. [Watch the video here](#) to learn how to use it.
- **K–7 Mathcasts Project** – Short videos (using [VoiceThread](#)) of math concepts by grade level and strand. Great for students to review at home.
- **AAAmath.com**
- **National Library of Virtual Manipulatives** – a library of uniquely interactive, web-based virtual manipulatives or concept tutorials, mostly in the form of Java applets, for mathematics instruction (K–12 emphasis)
Study Skills Tools

- **CueCard** – an electronic flashcard program download with multiple features including ability to import audio and graphics. Keeps track of correct responses and can be printed out.
- **Study Stack** – create interactive web-based flashcards or use ones that are already created; if you use stacks that are already created, check them first as there are errors in several of the created stacks.
- **Flash Card Machine** – allows the user to create interactive web-based study flashcards.
- **Flash Card Friends** – online, interactive flash cards
- **Flash Card Exchange** – large online library of flashcards. Create your own, study online or offline. Can be downloaded to Word, & Excel
- **Quizlet** – described as an online tool for learning vocabulary
- **Cramberry** – clean and simple online interactive flash card tool. If you are looking for simplicity, this will work for you. No bells or whistles; just a simple user interface.
- **MyMentor** – create, share and study flashcards online; download flashcards in printable format.
- **Awesome Highlighter** – tool that highlights text on a web page; save the URL or email it

Create note taking templates in Word

Use "Power of Color" within Word (background color, highlighting color and font color tools) to reinforce concepts, to determine salient points and for review

Use the "Organizational Chart" in the Diagram Gallery that is part of the Drawing Toolbar in Word to reinforce concepts and relationships which promotes learning.

In Word, press the Alt tab + mouse click within a word to access the Research pane. When you are online, you will instantly get a definition of the word.
Free Collaboration Tools (these are accessible anywhere!)

- **Google Docs and Spreadsheets** – allows students to collaborate on work from any computer including while at home

- **Zoho** – full suite of online, collaboration tools – word processor, presentation, notetaking (can insert audio), spreadsheets, planner. Worth exploring!

- **Ether Pad** – "really real time" online collaboration, no signup required.

- **Go 2 Web 2.0** – here you will find every Web 2.0 application imaginable. There are tools for everything. Constantly updated!

- Web 2.0 Tools – (These tools especially benefit the learner with reading, organizational or attentional issues as the material can be easily retrieved, read or listened to online)
  - Wikis – provide group collaboration opportunities and study guides
  - Blogs – provide opportunities for written expression without time constraints and can use text-to-speech, spell check, grammar check etc. before posting. Blogs are great for students who are less vocal IN class, for a variety of reasons, but still want a chance to participate in discussions
  - Podcasts/videocasts
  - Web-based social bookmarking tools such as Delicious or Portaportal – create class favorites that your students can retrieve anywhere to help them study
Multimedia and Digital Storytelling Tools

- **Voice Thread** – capture audio for online digital storytelling. THIS IS A MUST HAVE! This is one of the best tools for reaching the needs of all the learners in our classrooms, for all content areas from K–12. The pro version is free to K–12 educators. Make sure you watch the excellent tutorials to take advantage of all the features this tool has to offer.
  - Here are some examples to show you how other educators are using Voice Thread for Education.

- **Photo Story 3 for Windows** – you will be amazed at how quickly you can create slide shows or movies from your class photos. Upload your photos in seconds, easily add music and you have a year end presentation of your class activities. MANY other uses.

- **Photo Peach** – even easier than Photo Story and it's online so it doesn't matter what computer platform you are using. Import photos, write captions, add music, done! The spiral effect is cool. Watch the demo here.

- **Animoto** – create fully customized videos of user-selected images and music almost instantaneously. The web application does all the work once you select your images and audio. This one is so cool! Animoto For Educators

- **ScrapBlog** – Create online multimedia scrapbooks from your text, video, audio and photos

- **Building Wings: How I Made it Through School** – A free "Readers Theater Implementation Toolkit" accompanies this autobiography by Don Johnston "which helps learners take charge of their learning potential!" Learned about this from Valerie who left a comment.

- **50 2.0 Ways to Tell a Story** (Alan Levine--CogDogRoo)
Tools that Compensate for Handwriting Issues

Consider using these tools to bypass output issues, for example, as an alternative way to record homework assignments, and get ideas recorded.

- **Dial2Do** – lets you do common tasks by just calling a number and speaking. Use it to send EMAIL or TEXT messages, record REMINDERS to help you remember things. It's easy and handsfree. [Watch the video here](#).

- **Vocaroo** – very easy to use online audio recording service; can email, download or post the recording to the internet.

- **TokBox** – Free video chat and video email. [View the demo here](#).
Tools For Auditory Discrimination
**What's That Sound** (QuickTime version)
- **Jay Calls** – engaging auditory discrimination site for younger students.

**Additional Free Tools**
- **Project Spectrum** – Google Sketchup Tutorial for use with students on the Autism Spectrum
- **Spelling City** – insert the week’s spelling list and students can play games, finish worksheets, and complete other interactive activities.
- **Pacer Center – Kids Against Bullying Site** – very kid friendly
- **ZacBrowser** – Web Browser designed by a grandfather for his grandson who is on the Autism Spectrum. Appropriate for young children or those with developmental disabilities
- **Do to Learn** – Free **Feelings** and **Emotions** Games, excellent for social skills instruction, also check out the **Fire Safety** and **Street Safety** songs for students with cognitive disabilities
- **Yackpack** – audio email or free live conferencing
- **Eyejot** – "Video messaging in a blink," video email tool
- **Better Fonts** – **Dafonts** – free fonts
- **PDF Creator** or **Cute pdf** – free PDF conversion tools
- **Diigo** – a powerful social annotation research tool, with highlighting features
- **Cast UDL Lesson Builder** – provides educators with models and tools to create and adapt lessons that increase access and participation in the general education curriculum for all students.
- **Checklists** – linear alternative to rubrics, easily create guides for students' projects.
- **Visual Schedules** – best for younger students.
- **Note Star** – helps organize notes and bibliographies for essays and research papers.
- **Imagine Symbols** – 4000 free realistic symbols. Import these into your clip art folder for easy access.
- **Audacity** – Free, cross-platform software for recording and editing sounds
- **Jott** – Use a cell phone to send emails or voice messages, great for students to send themselves reminders, homework assignments, to-do lists, summaries of class instruction, etc. This can be an effective strategy for students with executive function, organization or written output issues. Check out additional ideas here in this blog post.
- **Click N Type Virtual On Screen Keyboard**
- **Pics4Learning** – copyright friendly image library for teachers and students
Research Tools

- UDL Strategy Tutor

Reference Portals

- EverNote – Notetaking tool on Steroids; capture, clip, save and share – watch the video but think of the education applications
- See Graphic Organizers for help structuring your project ideas
- NoteStar – an Internet utility to assist in the preparation of research papers. Teachers and students can set up research projects with topics and sub-topics. Students may then take advantage of NoteStar's many features to collect and organize their notes and prepare their bibliography page.

For documentation

- Bib Me – Bibliography Maker
- EasyBib – Bibliography Composer
- Research & Documentation Online Download sample papers (MLA & APA styles) with Hacker & Fister's well-known guide
- NoodleBib MLA Starter
- Citation Machine >

For note-taking

- UberNote (for tagged notecards and notes)
- Google Notebook

http://udltechtoolkit.wikispaces.com/
Additional Strategies

- Create customized lined paper using the Line tool within the Drawing Toolbar within Word. Give students the choice of lined paper within your classrooms including mid-lined paper.

- Customize the toolbar in Word; remove extraneous icons on the Standard and Formatting Toolbars and add the "Insert Sound Object" icon so that it is readily available for student or teacher use. (There are numerous options for this "Power of Voice" feature – this is a very powerful tool!)

- Enlarge the icons on your customized toolbar in Word

- Embed verbal prompts in your documents for student support.

http://udltechttoolkit.wikispaces.com/
10th September 2007 - audiobooks added:
- Mr Papingay's Ship (by Marion St John Webb) *
- Eric Prince of Lorlonia (by Countess of Jersey) *

20th August 2007 - audiobooks added:
- Phantom Ship (by Captain Frederick Marryat)
- Mirror of the Sea (by Joseph Conrad) +

20th August 2007 - Independent (100% Royalties) audiobooks added:
- Enoch Arden (by Lord Tennison)
- Winter's Tale (by Charles and Mary Lamb) *
- Two Gentlemen of Verona (by Charles and Mary Lamb) *
- Twelfth night or What You Will (by Charles and Mary Lamb) *
- Timon of Athens (by Charles and Mary Lamb) *
- Tempest (by Charles and Mary Lamb) *
- Taming of the Shrew (by Charles and Mary Lamb) *
- Romeo and Juliet (by Charles and Mary Lamb) *
- Pericles, Prince of Tyre (by Charles and Mary Lamb) *
- Othello (by Charles and Mary Lamb) *

http://www.audiobooksforfree.com/home
http://grammar.quickanddirtytips.com/
Great Speeches in History is a podcast devoted to the great thinkers, statesman and other public orators that have graced us throughout history with their words. Each week LearnOutLoud.com will offer up a new speech in audio format. Please visit www.learnoutloud.com for more educational audio and video.

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<td>18:56</td>
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<td>15:14</td>
<td>Jesus of Nazareth</td>
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<td>1/24/2007</td>
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<td>In His Own Defense</td>
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<td>Robert F. Kennedy</td>
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BRAINPOP

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http://www.brainpop.com/about/tour/
Sample: brainpop.com

Animated video lessons
On ALL of these topics!

Check out just the Math lessons!

http://www.brainpop.com/about/tour/
1. Movie can be run full screen to avoid visual distractions
2. Movie can be REVIEWED as often as needed for learners who don’t “get it”
3. Instruction is available from home or wherever there is internet access (public library)
4. Spanish version an option
Feedback!

Constant "rehearsal" opportunities For students!

Hablo Espanol?
But wait! You can even... Align with state standards!
Links to Learn More About UDL & DI

UDL Toolkit

IRIS Center at http://iris.peabody.vanderbilt.edu

http://www.ascd.org/pdi/demo/diffinstr/differentiated1.html

http://ericir.syr.edu/plweb-cgi/obtain.pl
References


RTI Action Network
Exit Slip/Reflection

- What did I learn?
- Why did I learn it?
- How can I use it?
Maxwell Maltz, author of Psycho-cybernetics

“It takes 21 days to form a habit.”

Thank you